Claim 55 may be found in original Claim 48 and in the Specification at page 8, lines 9-10. In light of the Amendment, Applicants respectfully request the withdrawal of the objection to the claim.

REMARKS

Claims 37-39 have been canceled by this Amendment. Applicants reserve the right to prosecute claims of similar scope in the future.

Claims 44 and 45 have been amended to correct the antecedent basis. The claims now recite "said amino acid side chains."

35 USC §112

Claims 44 and 45 are rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In light of the above Amendment to the Claims Applicants respectfully request the withdrawal of the rejection of Claims 44 and 45.

In light of Claims 37-39 being canceled by this Amendment, the rejection under §112, first paragraph has been made moot. Applicants respectfully request the withdrawal of the rejection of Claims 37-39.

The Applicants submit that in light of the argument, the claims are now in condition for allowance and an early notification of such is respectfully solicited. The attached page is captioned **"Appendix of Pending Claims."** Please direct any calls in connection with this application to the undersigned at (626) 737-8019.

Dated: May 12, 2003

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Respectfully submitted,
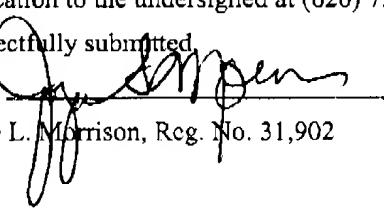
By: Joyce L. Morrison, Reg. No. 31,902

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VERSION SHOWING CHANGES MADE

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

44. (Amended) A computer readable memory according to claim 43 wherein said [first and second sets of rotamers] amino acid side chains are different.

45. (Amended) A computer readable memory according to claim 43 wherein said [first and second sets of rotamer] amino acid side chains are the same.

48. (Canceled)

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APPENDIX OF PENDING CLAIMS

30. (Once Amended) A computer readable memory that upon execution by a computer processor carries out the following functions:

    a) alters at least one supersecondary structure parameter value of a protein backbone structure;

    b) correlates a group of potential rotamers for residue positions of said protein backbone structure; and

    c) analyzes the interaction of each of said rotamers with all or part of the remainder of said protein backbone structure to generate a set of optimized protein sequences.

36. A computer readable memory that upon execution by a computer processor carries out the following functions:

    a) alters at least one supersecondary structure parameter value of a protein backbone structure;

    b) correlates a group of potential amino acids for residue positions of said protein backbone structure; and

    c) analyzes the interaction of each of said amino acids with all or part of the remainder of said protein backbone structure to generate a set of optimized protein sequences.

40. A computer readable memory that upon execution by a computer processor carries out the following functions:

    (A) receiving a protein backbone structure with variable residue positions;

    (B) altering at least one supersecondary structure parameter value of said protein backbone structure prior to establishing a group of potential amino acids;

    (C) establishing a group of potential amino acids for each of said variable residue positions, wherein a first group for a first variable position has a first set of at least two amino acid side chains, and wherein a second group for a second variable position has a second set of at least two different amino acid side chains, and wherein said sets are different; and

    (D) analyzing the interaction of all or part of each of said amino acids with all or part of the remainder of said protein backbone structure to generate a set of optimized protein sequences.

41. A computer readable memory according to claim 40 wherein said first and second sets of amino acids are different.

42. A computer readable memory according to claim 40 wherein said first and second sets of amino acids are the same.

43. A computer readable memory that upon execution by a computer processor carries out the following functions:

 a) receiving a protein backbone structure with variable residue positions;

 b) altering at least one supersecondary structure parameter value of said protein backbone structure prior to establishing a group of potential residue positions;

 c) establishing a group of potential rotamers for each of said variable residue positions, wherein the group for at least one variable residue position has rotamers of at least two different amino acid side chains, and wherein at least one of said amino acid side chains is from a hydrophilic amino acid; and,

 d) analyzing the interaction of each of said rotamers with all or part of the remainder of said protein to generate a set of optimized protein sequences, wherein said analyzing step includes the use of at least one scoring function.

44. (Amended) A computer readable memory according to claim 43 wherein said amino acid side chains are different.

45. (Amended) A computer readable memory according to claim 43 wherein said amino acid side chains are the same.

46. A computer readable memory according to claim 43 wherein said hydrophilic amino acid is selected from the group consisting of serine, threonine, aspartic acid, asparagine, glutamine, glutamic acid, arginine, lysine, and histidine.

47. A computer readable memory according to claims 40 or 43 wherein step d) comprises a ranking module.

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49.(New) A computer readable memory according to claim 30 wherein step c) comprises a ranking module.

50. (New) A computer readable memory according to claim 30 wherein said ranking module includes a van der Waals scoring function component.

51. (New) A computer readable memory according to claim 30 wherein said ranking module includes an atomic solvation scoring function component.

52. (New) A computer readable memory according to claim 30 wherein said ranking module includes a hydrogen bond scoring function component.

53. (New) A computer readable memory according to claim 30 wherein said ranking module includes a secondary structure scoring function component.

54. (New) A computer readable memory according to claim 30 that further assess the correspondence between potential energy test results and theoretical potential energy data.

55. (New) A computer readable memory according to claims 30, 36 or 49-53 further comprising physically generating at least one member of said set of optimized protein sequences and experimentally testing said sequence for a desired function.

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